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Surface Water Management
Financing Local Management Programs

Metropolitan Council, St. Paul, MN

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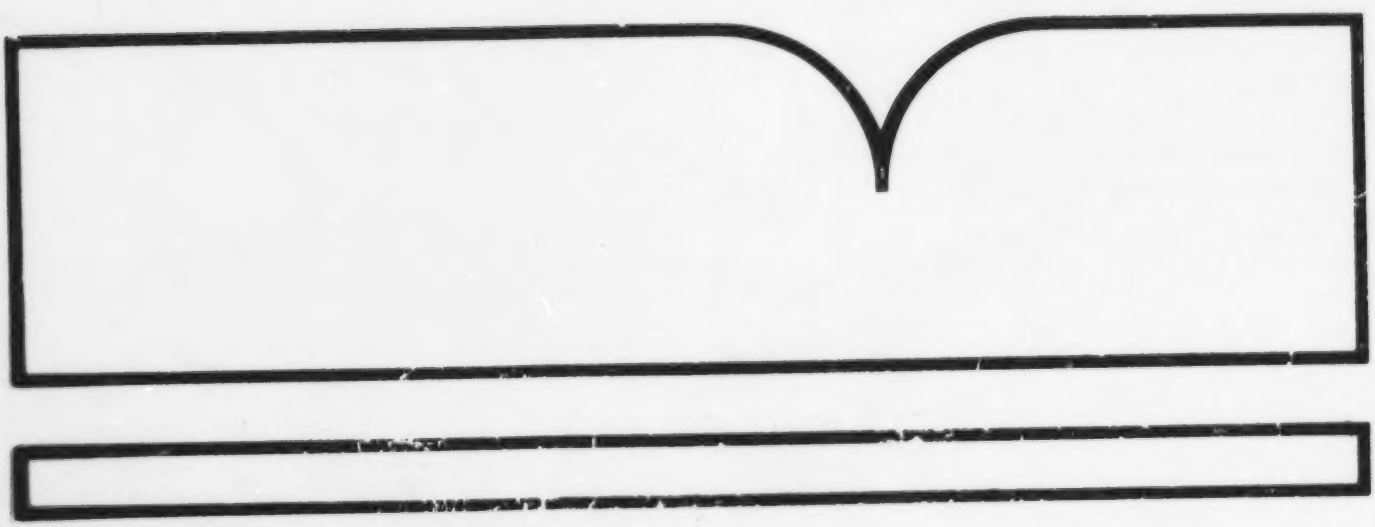

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In deciding which financing scheme should be used for surface water management, the governmental units and watershed organizations must determine who should bear the burden of payment: those who benefit from improved drainage, better flood protection and better water quality, or those who contribute to the problems, or some mix of each. Those assessing costs should be careful to analyze the impact of the financing scheme on the individuals or classes of individuals and to determine whether the scheme is equitable and efficient.

This report examines briefly the steps that must be addressed in the financial analysis when developing a surface water management program. The report deals with three areas of particular importance: financing principles, sources of expenditures, and potential financing mechanisms. The report also provides some details on programs in Washington, Oregon and Colorado that rely on user charges to finance storm water management programs.

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Metropolitan Council

Surface Water Management

FINANCING LOCAL MANAGEMENT PROGRAMS

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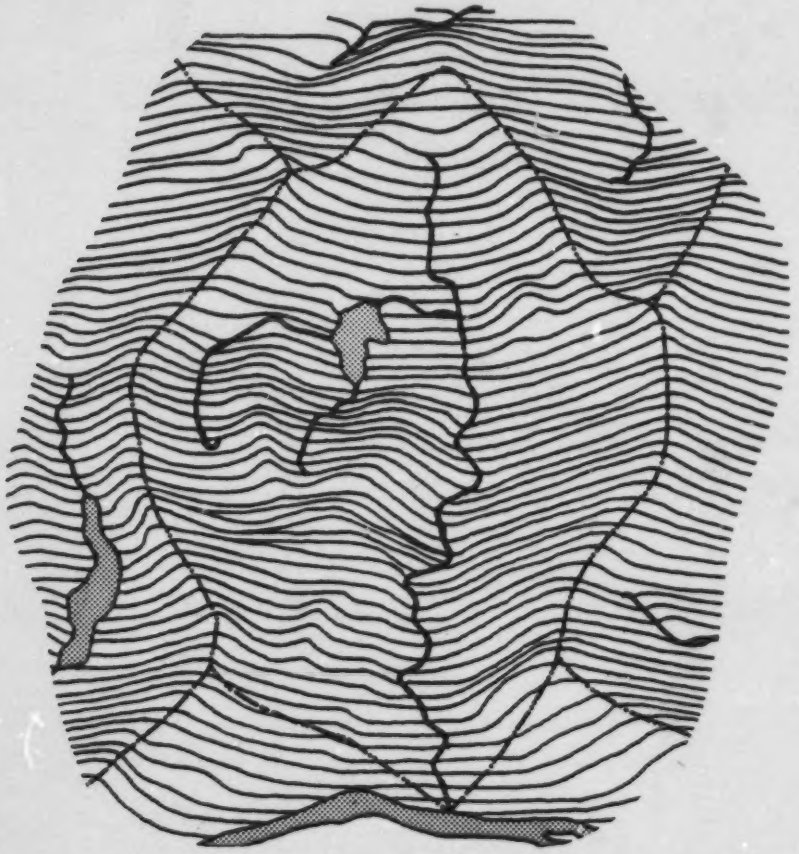

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SURFACE WATER MANAGEMENT:

FINANCING LOCAL STORM WATER MANAGEMENT

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INTRODUCTION

In 1982, the Minnesota Legislature enacted the Metropolitan Surface Water Management Act (M.S. 473.875 to 473.883) which requires most of the Metropolitan Area to prepare surface water management plans--first at the watershed level and then, in a second step, at the city or town level. This law responded to the growing perception of costly problems caused by a lack of proper surface water management.

During the present period of fiscal restraint, federal funding cutbacks and the difficult economic recovery, local governments consider it impossible to finance the activities required under this law. Both the preparation and execution of the watershed plan and of the local surface water plan will require local expenditures. The cost of planning and executing these plans can be greatly limited by determining early on the topical areas that really need to be addressed, intergovernmental coordination of efforts (such as, standards development, ordinance/regulation development, review procedures, pooling staff resources), the reliance on nonstructural and regulatory control programs, and limiting capital improvements to the absolute minimum. Similarly, the impact of the plan and program can be greatly reduced by phasing certain expenses during plan preparation and execution.

The Surface Water Management Act did not provide for new sources of revenues for watershed organizations or for local units of government to undertake the activities mandated by the Act. The legislation, however, made it easier for local units of government to rely on ad valorem property taxes to finance a surface water management program. M.S. 473.881 exempts from the levy limits imposed on local governments any levy to pay for the cost of plan preparation and execution, improvements and their maintenance.

In 1983, the Legislature added user fee or user charge, to the array of existing local revenue sources including: property tax, assessments, and permit fees and developers' contributions that can be used in financing surface water management. The 1983 amendments to M.S. 444.075 subd. 1 and 3 authorize cities, except Minneapolis and St. Paul, to impose use, availability and connection charges for the financing of surface water systems, including the conveyance system, holding areas, ponds and related facilities.

Congressmen have tried to pass a bill to mandate nonpoint source (urban and agricultural runoff) pollution abatement and provide for some federal funding for these sources of pollution control. However, at this time no legislation has passed mandating nonpoint source pollution control. Thus when preparing their financial plans cities and watershed organizations should look only to local revenues in deciding about ways to finance and phase their activities and let federal funds be a pleasant surprise when they come; perhaps allowing some efforts to be accelerated.

In deciding which financing scheme should be used the governmental units and the watershed organizations must determine who should bear the burden of paying the cost of the surface water management program: those who benefit from improved drainage, better flood protection and better water quality, or those who contribute to flooding and water quality degradation, or everybody. The governmental units should be careful to analyze the impact of the financing scheme on the individuals or classes of individuals and to determine whether the scheme is equitable and efficient.

This report does not examine a regional financing scheme to prepare plans or implement a runoff or nonpoint source pollution abatement program. A case can be made that activities relating to the maintenance or improvement of water quality in some streams and lakes of the Region, heavily used for recreation, will benefit largely the urban population and other recreationists from outside the affected areas. However, there is no structure available to determine the level of benefits provided or to collect fees from the recreational users of the stream or lake. User charges could be assessed against recreationists by the park agencies, but one may question the fairness of a system where fees or charges are collected at some public accesses and not at others. To date, park entrance fees have not been popular, and have been unable to support the operation and maintenance of the regional parks.

This report examines briefly steps that must be addressed in the financial analysis when developing the surface water management plan. Then, the report deals with three areas of particular importance: financing principles, sources of expenditures and financing mechanism. The report also provides some details on programs in Washington, Oregon and Colorado that rely on user charges to finance the storm water management program.

The report was written by Marcel Jouseau, manager of the Metropolitan Council's Natural Resources program.

FINANCIAL ANALYSIS

During this period of fiscal difficulty for governments, it is paramount that watershed and local surface water management plans not only seriously assess the technical merits of planning and engineering solutions to surface water issues, but also include a financial plan supported by equally rigorous financial analysis. Financial analysis is essential to the success of the surface water management program. The analysis will provide the information needed by both public and local officials in making decisions on the surface water management program and the program financing. The analysis should be an integral part of the development of the storm water management program and should be conducted at the same time as the evaluation of the various approaches to runoff and water quality management. This way, financial issues will be raised early enough in the process to have an impact on the framing of the runoff management and the implementation elements of the plan. The financial analysis should be formalized in a financial plan thatcontains the following information:

1. Financing or pricing philosophy and policies;

2. Financing mechanisms and sources of the funds or revenue analysis;

3. Cost estimates for the storm water management plan including: planning, monitoring, capital improvements, operation and maintenance, administrative cost, inspection costs;

4. Implementing agencies and costs associated with the discharge of their responsibilities over time;

5. An evaluation of the financial impact on an individual, class of individuals, and the agencies involved;

6. A sensitivity analysis and secondary impact analysis (U.S. EPA, FMAP, 1982).

It should be noted that this information is not required by the 1982 Metropolitan Surface Water Management Act. However, this suggested financial analysis will help watershed management organizations, local governments and the public alike in deciding on the surface water management programs for their area. Furthermore, good financial analysis will likely result in substantial savings in the long run.

FINANCING OR PRICING POLICIES

The financial plan should spell out the funding or pricing philosophy, that is, who should pay for the surface water management program: the runoff/pollution generating properties; the properties that benefit from the program, or everyone. The choice of philosophy has serious implications because it may determine the financing mechanism to be used. For example, a decision to have benefitted properties bear the cost of the program could result in the use of special assessments; whereas assessing properties that cause runoff would lead to a user charge. This philosophy should be translated into fiscal policies. The governmental unit would also decide on what basis the charge is to be developed: property value, front footage or area of the lot, land use class, volume of runoff or of pollution generated, increase in market value of the property, others....Funding and pricing policies will have a definitive impact on the government's ability to generate revenues to execute the plan and on the acceptance of the plan by residents of the affected area.

FINANCING MECHANISMS AND SOURCES OF FUNDS

Alternative funding sources and financing mechanisms should be inventoried and analyzed for their reliability, the constraints they impose, their acceptability and their relation to the financing and pricing philosophy and policies. Different mechanisms will raise issues of equity with respect to who benefits and who pays for that benefit.

There are basically two major categories of funding sources: intergovernmental sources such as federal and state grants that are generally available for capital improvements; and local sources of funds including taxes, special assessments, user charges and development fees. Dedicated land (obtained at the time of land subdivison), while not a source of revenue, may be used to implement certain elements of the surface water management plan.

COST ESTIMATES

The program costs must be developed with a fair amount of detail. Each activity and the associated cost should be identified. These activity costs include capital improvements, operation and maintenance, regulatory activities, monitoring and surveillance, planning/engineering, administration and public information/education.

The assumptions used in determining the costs should be identified so the various parties can agree about them, and the reliability of the cost estimates can be evaluated as it becomes necessary to alter assumptions. The cost estimates should also be extended into the future. The various sources of expenditures must be carefully evaluated because different surface water management approaches have different implications for program requirements and costs.

IMPLEMENTING AGENCIES

The local government agencies that have responsibility for operating the surface water management program should be identified, the need for staffing, additional expertise, authority and equipment should be reviewed. The cost of discharging the agencies' responsibilities should be estimated over time so funding sources and financing mechanisms can account for them.

IMPACTS ON INDIVIDUAL AND GOVERNMENTAL AGENCIES OR ABILITY TO PAY ANALYSIS

For the surface water management program to be acceptable, it must be affordable by local governments and the individual residents and businesses affected. The future spending for governmental services and the future revenue generating ability and the debt capacity of the local government must be assessed. Future needs of competing governmental services also should be considered because they may affect decisions about funding sources and the financing mechanism selected for the surface water management program.

An analysis of the individual's ability to pay also should be undertaken. This analysis should be done on a household basis or some other appropriate basis, and it should pay particular attention to the impact on low- and moderate-income households in addition to median-income households.

SENSITIVITY ANALYSIS AND SECONDARY ECONOMIC IMPACTS

The sensitivity analysis is a useful tool in assessing how the individuals' or governmental units' ability to pay changes over time and under different financing schemes and funding assumptions. This analysis also will demonstrate whether the program's acceptance or desirability may be questioned, and the program challenged if assumptions are changed.

Factors to take into consideration for this analysis include: phasing of capital improvements, community rate of growth, changes in the cost of providing the service, reliance on external sources of funding, inflation and so on.

Analyzing the program for its potential secondary economic impact is difficult though necessary to determine whether the program may have beneficial or harmful effects on the economic base of the area. Consideration should be given to the shifting of costs, financial effects, on other programs, desirability to live or recreate in the community, and so on. For example, would user charges assessed against lake park users have a negative effect on the local restaurants, bars and specialty shop businesses in the community? Perhaps the only way this analysis can be undertaken is through a qualitative rather than quantitative (dollars) approach. The various alternatives can be listed and the advantages/disadvantages can be inventoried.

SOURCES OF EXPENDITURES

Surface water management entails many activities that require public funding. Listed are the major activities that must be considered during the preparation of cost estimates and budgeting for surface water management at the watershed and local government levels. The various surface water management approaches will impose different costs, for example, a non-structural approach is likely to require more administration, more regulation enforcement and thus more inspection than a structural approach, but the capital expenditure is likely to be negligible.

PLANNING COSTS

One should consider watershed or local plan preparation, including data acquisition for plan preparation; development of a design or maintenance criteria manual for the drainage system; inventory of the drainage facilities to determine structural deficiencies or other problems; fiscal planning; operation and maintenance planning; coordination with other governmental jurisdictions; regulatory control program development.

DATA ACQUISITION AND MONITORING COSTS

These costs are attributable to activities undertaken while the first watershed or local plan is being implemented. These activities are designed to determine the effectiveness, including cost effectiveness of surface water management practices; to further define problem sources of pollution runoff; and to provide guidance for revisions to the plan, regulations and the management program in general.

PROGRAM ADMINISTRATION COSTS

These involve the costs resulting from day-to-day activities including billing, personnel, and general management of the program. It also should include the costs of budgeting activities, user charge study and rate adjustment or determination of tax levy level or assessment.

CAPITAL IMPROVEMENTS COSTS

These relate to structural and nonstructural projects that are necessary to convey or treat the runoff. Costs may include: planning, engineering and designing the structure or program, bid letting, contract documentation and actual construction or land acquisition, inspection and the like, and construction funding such as preparing bond issues and preparing assessment rolls.

OPERATION AND MAINTENANCE OF THE CAPITAL IMPROVEMENT COSTS

Such costs relate to ditch or storm sewer or pond cleaning, repairs, monitoring and testing flow quantity and quality, inspection and surveillance.

REVIEWING NEW DEVELOPMENT, INSPECTION AND SURVEILLANCE

This section should include administrative and technical review costs associated with the review of runoff management for new land development projects. including: permit processing; also site inspection by local or watershed officials during development stages and after completion of the development; rates determination for runoff volume and quality and user charge or tax; as

well as coordination with other agencies or with other governmental units. Many communities have adopted a permit fee system that allows them to pass on some of these costs to developers. However, these costs are not generally accounted for and included in the budgeting process.

PUBLIC EDUCATION PROGRAM

For any surface water management plan, or scheme, including runoff volume, quality control and fiscal plan to be successful and accepted by officials and the public, a great deal of effort must be put into educating the public at large about: 1) the necessity of the surface water management program and the dos and don'ts to reduce runoff volume and minimize water quality problems; and, 2) how the financing plan will affect individuals. Costs associated with this program include: general public information, coordination with agencies, coordination with commercial groups, civic leaders, etc., media releases, public meetings and presentations and an on-going information program. One should be careful not to rule out this expenditure as useless because the success of the surface water management program is likely to be directly proportional to the level of the effort to educate the public.

FINANCING PRINCIPLES

Two basic principles for cost allocation should be discussed: benefitted properties pay, contributing properties pay. Of course, a governmental unit has the choice of sharing the costs among every household and business alike; this leveling approach is not discussed here. Each of these two principles presents advantages and disadvantages and may lead to the choice of one financing mechanism to the exclusion of another. Therefore, the choice must be carefully weighted to avoid hardship or even additional unwarranted costs.

BENEFITTED PROPERTIES PAY

This principle has been embodied in the law governing the assessment procedures to be used by local units of government when allocating the costs of sanitary sewers and storm water service, streets and water supply systems. The rationale is that those property owners who benefit from the improvements should bear the burden of the costs incurred in providing the service. While the benefits from a street being built next to a property or from the availability of sanitary sewer service or of municipal water supply can be well documented, it may be more difficult to assign the benefits from a storm water detention facility or from the nonpoint source pollution control devices to particular parcels of land. This is particularly true in situations other than where development has clearly occurred in the natural floodplain or in the basin of a lake, or where residences have been built along the shoreland of a lake.

Even more difficult is the determination of benefits when floodplain and shoreland regulations have been respected and the need for improvement is the result of upstream land development causing pollution or flooding conditions far above what would be expected under normal conditions. When the benefitted property owners are to pay for these improvements required by unusual release of runoff and pollution, there is no incentive for the "polluters" to minimize pollution or improve the drainage system.

Additional difficulties result from the fact that Minnesota law regarding special assessment link the determination of benefits to a determination of the increase in market value of a property as a result of the project. The difficulty is greatest where there is a considerable lagtime between results or improvement and the construction of a project. For example, the water quality improvement or prevention of water quality degradation through building detention facilities for runoff may not be seen for another 10 or 20 years and therefore cannot be translated into readily recognizable market value increases for any given property.

Because improvement in runoff volume and quality provided within one municipality may benefit only properties in another municipality, often the cost allocation should be determined at a higher level of government than the local municipality level. The determination of benefits will be made easier if the watershed management organization is responsible for it. In other instances, where the benefits accrue downstream beyond the limits of the watershed confine, there will be no incentive to improve water quality or to minimize volume of flow unless external sources of funding are available.

Minnesota lawregarding drainage and runoff obligates downstream or downslope property owners to receive runoff and therefore some pollution from properties above. The standards used by the courts have not been quantified but there is

no doubt that there is an obligation to accept at a minimum the natural and some reasonable increase in the runoff and associated runoff pollution. Diffused surface water common law has gradually developed a "reasonable use" doctrine permitting drainage onto the land of neighbors as long as the method of drainage, increases in runoff and the injury to the receiving property are "reasonable." (Peterson, 1979)

The doctrine of "reasonable use" tends to favor assessing the cost improvements to benefitted properties; that is, those that receive the increased runoff and, therefore, must be protected. In recent years, popular interest in what is happening to the stream or to other receiving waters downstream or downslope from the runoff contributing properties may lead to changes in assessment practices and put the burden more on contributors, rather than on the benefitted properties.

CONTRIBUTING PROPERTIES PAY

In Minnesota, this principle has seen limited application in the area of runoff management and water quality improvements and could only be used by watershed districts. Until recently this principle had not been written into the laws governing the way a local unit of government may allocate the costs of necessary storm water management improvements. Watershed districts formed under Minnesota Statutes Ch. 112 (Watershed Act) were granted the authority to assess contributors properties in 1969 (1969 Minnesota Laws, Ch 1072). This principle is codified in M.S. 112.501 subd. 2 (see Opinion Attorney General 206-a, Aug. 222, 1979). Watershed districts have developed various formulas for assessing contributors as well as benefitted properties, using different rationales. To date, no legal challenge has been made to the authority of watershed districts to assess water contributing properties and, thus, there is still no court precedent. Watershed districts have relied on the opinion of the Minnesota Attorney General to support their interpretation of the Watershed Act and, thus, their assessment practices.

The rationale for this financing principle is to allocate the costs of surface water management and associated improvements to property owners who generate the runoff and the pollution load and who, therefore, are causing the need for improvements. The advantage of the contributors pay principle is that it provides an incentive for the contributors to curb runoff and water pollution loads leaving their property. However, they may choose which is the most efficient for them: to manage the runoff themselves, or leave it to the governmental unit in exchange for a financial charge. Obviously, the stronger the relationship between the fee required of them for service and the cost to a muncipality to handle the pollution load or runoff leaving the property the greater the incentive to curb the problem.

This principle however provides very little incentive to people to locate outside areas, such as floodplains, that might be affected by the runoff. Governmental regulatory controls will be necessary to insure that floodplains or lake level fluctuation areas are not built on, leading to the need for costly projects or stricter (more limiting of runoff generation) controls being imposed on upstream properties.

When the contributors pay principle is adopted a governmental unit must establish some unit of measurement that will be used to assess the quantity of runoff or pollution contributed by each land parcel. The determination of contribution may require varying degrees of effort and result in various levels

of cost depending on the level of sophistication necessary or thought to be required to quantify it. Units of measurement that could be used include: land use category and parcel size, area of effective imperviousness, actual runoff generated by each parcel, phosphorous or Chemical Oxygen Demand (COD) generated by each parcel, or on a generic basis (land use category and parcel size). Because agricultural land use also generates runoff as well as pollutants it should not be automatically dismissed as non-contributing open space. A different unit of measurement must be developed as runoff generation and pollution loading in agricultural areas are not related to imperviousness but to crops and water and land management practices as well as animal wastes management.

FINANCING MECHANISMS

As noted in the previous chapter, on the choice of the financing principle depends in great part the selection of the financing mechanism. For example, the adoption of an "everybody pay" philosophy would likely lead to the use of property taxes as the financing mechanism, whereas a "contributors pay" philosophy would require a user charge approach.

Across the United States, many financing mechanisms have been used to generate local revenues for water pollution control or the provision of storm sewer service. Among the techniques more commonly used are: selective sales tax, ad valorem property tax, general sales tax, building permit fees, special assessments, user fees and developers' land or cash contributions. Those mechanisms that bear some relationship to the generation of runoff or pollution load should be preferred. Others, like sales tax and property tax, are only devices for obtaining revenues, regardless of the service to be provided.

Bonds will not be discussed in this report because they are a type of loan to procure immediate and large amounts of capital funds for improvements, a source of revenues the government must pledge for repayment of the bonds. The actual source of revenues pledged may include: Ad valorem property tax, special assessments or user charges. Bonds have long been used as a source of capital. In recent years, however, a new vocabulary has been added to the bond market terminology. Restrictions imposed by the Tax Equity and Fiscal Responsibility Act of 1982, federal aid cutbacks, shrinking tax sources, and high interest rates have forced local governments to consider new creative financing for capital improvements (Hamilton, 1983). The new terminology includes: zero-coupon bonds, compound interest bonds, stripped coupon bonds, stepped coupon bonds, tender option bonds, super sinker bonds, and floating rate bonds (Hamilton, 1983). Each of the various types of bonds presents particular advantages, as well as different financial burdens for the governmental unit. These are part of a highly specialized form of financing that require substantial analysis to insure the best and cheapest financing.

Federal and state grants also are not discussed in the report. There are no federal or state grants available for surface water management and nonpoint source pollution abatement. Local governments may use Community Development Block Grants, a general purpose grant, for capital improvement programs including storm water system. It is generally not a good financial practice to rely on grants for a service program because this source of revenue is not dependable and requires constant speculation as to its availability. Grants are useful but they should be used only to supplement a planned local revenue source and perhaps to accelerate certain phases of the management program. They also may not represent a steady revenue base.

Prior to deciding on financing mechanisms or developing a financial plan for surface water management, the watershed organization or the local unit of government must first establish the level of revenue requirements, develop a philosophy regarding cost allocation and decide whether the system is fair, as well as the public and political acceptability of the cost allocation and revenue sources. The following questions that bear on the outcome and acceptability of the plan must be addressed:

How much of the cost should be allocated to runoff or pollutant generators? How much of the cost should be allocated to benefitting persons (lakeshore property owners, development in the floodplain or low areas, etc.)? How are the costs equitably allocated among classes of users? How are the various classes of users treated? What is the financial impact on the individuals affected? How does geographic area coverage (entire municipality, subwatershed areas, individual project areas) influence the cost allocation? What are the financial impacts on the responsible agencies and the individuals?

The answers to these questions will help in defining the funding and pricing structure as well as perhaps, by identifying revenue sources and impacts on individuals, help decide on the priorities and the phasing of the implementation of the plan.

The various financing mechanisms are reviewed in the following sections; the financing principle used and the advantages and disadvantages of each mechanism are identified with each mechanism. Table 1 provides a summary of the advantages and disadvantages. Table 2 shows a way of evaluating the financing mechanisms.

AD VALOREM PROPERTY TAX

This is probably the most common means of generating revenues to finance general governmental services including surface water management and runoff pollution control. The financing principle relied on is that of leveling off or spreading the cost of the program. Using property tax has the effect of spreading the cost over the entire tax base of a community and perhaps lowering the cost per household.

The 1982 Metropolitan Storm Water Management Act (Laws of Minn. 1983, Ch. 509) exempts from the levy limit any levy necessary to pay for the increased cost, to local governments or watershed management organizations, of preparing plans and implementing the plans including capital improvements and maintenance of improvements, as provided in the approved plans (M.S. 473.881). This exemption to the tax levy limit makes it easier for the local government to obtain revenues from ad valorem tax; of course it does not necessarily translate into ready acceptance by the property owners. Ch. 509, or M.S. 473.883, also authorizes local units of government to establish "watershed management tax districts" for the purpose of paying capital improvements and maintenance costs. This section of the law then facilitates tailoring the allocation of the costs (improvements and maintenance) to individual drainage areas where these improvements are needed. However, this tailoring may present some problems with respect to the ability of individuals or property owners to pay, where improvement costs are large and the tax base small, and therefore endangers the acceptability of the proposed improvements. A community should look at the potential effect of districting on individual households prior to creating watershed management tax districts.

There are several advantages to using taxes as a means of financing runoff management:

1. The administrative structure for assessing and collecting the tax is in place. Therefore, collecting the additional tax necessary for the storm water management program will result in no or little additional costs for the existing administration.

2. The use of property taxes to provide governmental services and for the development of regulatory control programs is an accepted source of revenues. This should facilitate making the use of the tax for surface water management politically acceptable, or at least, no more difficult than for any other governmental services.

3. It is sometimes difficult, in the absence of adequate quantitative documentation, to identify specifically by class of land use or activity where runoff or the pollution loads are generated or which properties are benefitted. Using property taxes may then be an equitable way of assessing the cost of the program to the entire community and may reduce the cost of the program by eliminating the need for some additional data on runoff and pollution loads.

4. In some instances the tax base in a drainage area within the community may not be sufficient or the benefitted properties may be too heavily assessed to support an improvement. Spreading the cost of the improvement over the larger tax base provided by the entire community may make the cost to individual property owners rather insignificant and thus make the capital improvement project much more acceptable and thus insure success.

The major overall advantage of the property tax as a source of revenue is the ease with which the revenues can be collected and generally savings in justification costs resulting from the lack of need to quantify the pollution load or runoff volume from individual parcels.

However, there are some disadvantages associated with using property or any other tax to support a surface water management program:

1. Neither the runoff or pollution load contributors, nor the benefitted property owners have any incentive in either curbing runoff or pollution, or in locating outside the floodplain, or in limiting their demands for cleaner lakes. The property value is no indicator of the willingness to curb pollution or to pay for the benefits from clean water or improved drainage.

2. Revenues from property taxes have traditionally been available to finance all sorts of governmental services on a competitive basis. As a result, the allocation of tax revenues is subject to the political process and the pressure applied by various segments of a community. The continuing financing of a surface water management program that relies on tax may be less certain than if other sources of revenue are used. This in turn may have a negative impact on the ability to implement a surface water program in a coherent way.

SPECIAL ASSESSMENTS

Local units of government and watershed districts alike have long been familiar with the use of special assessments to finance special services from street cleaning, to sewer and water capital improvements, to street construction and storm water systems. Both the watershed districts, in M.S. 112.48 sub. 4 and the cities and towns in M.S. 429.051, have the authority to assess for services. Watershed districts may assess both benefitted and contributing properties, whereas cities and towns can only assess benefitted properties.

The philosophy embodied in the special assessment law is that generally the benefitted properties pay in relation to the benefits received. In Minnesota, the benefits are represented by the increase in the market value of the property that results from the surface water management improvements. However, in the case of projects to be undertaken by a watershed district, the district can also assess in relation to the water (runoff) generated (M.S. 112.501 subd. 2 (2). Thus watershed districts formed under the Watershed Act (M.S. 112) can use both principles of contributors' pay and benefitted properties pay.

The advantages of the special assessments are:

1. Assessments are levied for a specific service; so the assessment for storm water management is related to the size of the problem to be taken care of; and generally, only those who derive benefits from the improvement bear the cost.

2. In the case of watershed districts both the properties that are the source or the cause of the problem and the properties that benefit from the improvement will bear the cost. The formula for cost allocation can take into account various mixes of contributors and benefitted parties to reflect the particular situation. The property owners outside the area of the improvement and drainage area do not have to bear any of the burden. This seems to be the most equitable financing system.

3. Revenues from special assessments are to be used only for the specific project or service for which they have been levied. Thus, the funds are not subject to a competitive process.

4. Because special assessments are for a specific project or service the citizenry is more able to relate cost and service and determine the reasonableness of the expense for which they likely can see tangible changes. This, then, can help insure the acceptance of the project and its execution.

5. Cities may adopt policies for the deferment of special assessments to alleviate hardship to class of owners (deferment may be made till the sale of the land when owners may be better able to bear the cost). This advantage for the individual, however, may be a drawback for a unit of government, which must temporarily bear the financial burden.

Special assessments also have many disadvantages:

1. The statutes require specific procedures involving individual notification of all property owners affected, a determination of an assessment roll, and a hearing. All this adds many administrative costs.

2. In the case of cities and towns, the assessment is directed to the benefitted properties. These properties may have been wronged by the perpetrators of the problem that is being remedied (the contributing properties) who are left free of any financial burden.

3. When benefitted properties are assessed by a local unit of government rather than a watershed district, the assessment may not be any greater than the benefits, which are determined by the increase in the market value of the property. The assessing agency must therefore make a determination of this increase through the use of viewers or appraisers, at an additional cost.

4. The benefits are often difficult to establish, especially with respect to water quality improvement projects. Often the water quality improvement will not be visible for many years and it is difficult then to determine what a willing buyer would likely pay for better water quality or for maintaining good water quality.

5. In some circumstances the assessments can put an unfair burden on a class of individuals, especially the low-income segment of the population who may be confined to the area with the greatest problems and thus receiving the greatest benefits from a project. It is often the case that property values are lower where drainage problems or recurring flooding problems exist making the properties more affordable.

6. The assessment roll cannot be extended to include benefitted users of water bodies, such as recreationists, who do not own properties within the improvement areas.

7. Assessment powers granted a local government unit are rigidly limited. For an assessment to be valid it must meet the following criteria:

    a. The land assessed must receive a special benefit from the improvement constructed;

    b. The assessment must be uniform upon the same class of property.

    c. The assessment must not exceed the special benefit to the individual property; i.e., the increase in market value resulting from the improvement.

BUILDING PERMITS AND LAND DEVELOPMENT FEES AND LAND EXACTION

As land is developed or built upon surface water runoff increases and so does pollution loading. Review of land development and issuance of building permits requires, where surface water management plans are implemented, that the responsible agency review the effects of development on runoff. It may also require that provisions be made for handling the effect of the increased runoff and increased pollution loads. It is therefore reasonable that the administrative costs related to reviewing development plans for storm water concerns be included in the fees charged for land development or building permits. Other administrative costs involved may include enforcement of regulations for erosion control and runoff detention during and after construction. These costs could also be passed on to the developers (the runoff contributor).

From 1973 to early 1980, local units of government could also either ask for cash contributions from land developers to go toward financing a surface water management system, including conveyance, holding ponds and the like, or exact an area of land from the area being subdivided to provide for the surface water system. The cash payment in lieu of land exaction provisions, however, was repealed in 1980 (Minnesota 1980 Laws, Ch 566). This is unfortunate for it has eliminated the flexibility that a municipality had of using the funds to provide for facilities on a system-wide basis. The law now limits their use of land contributions to holding ponds or conveyance systems on the property for which land is exacted. This may also limit the efficiency of the drainage system from a flood control standpoint.

Advantages of this financing mechanism are:

1. The financing mechanism is directly related to the new development generating the runoff and the increase in pollution load or requiring review and inspection to insure that it takes place according to the standards set in the surface water management plans. So the agent causing the governmental expenditures for surface water and the bearer of the costs are one and the same; that is initially the developer.

2. The administrative structure necessary for the review of the project and later the inspection of the development is likely already in place. The additional review for surface water impact may not significantly increase the burden placed on the existing administrative personnel.

3. A community can continually reevaluate the need for storm water detention. Continued acceleration of water quality degradation in a subwatershed opened to development can be corrected through stronger regulatory controls and standards. The requirements can be negotiated with the developer during the development review and approval process. A fee structure and land exaction system can be developed to insure a self-supporting program for water quality control in that subwatershed.

Disadvantages of this scheme include:

1. Problems caused by existing developments cannot be corrected by this scheme.

2. This scheme is limited to prevention of runoff or pollution related problems, in itself a major achievement. However, the sum total of development may ultimately require improvement projects or maintenance projects which cannot be financed this way.

3. Land exaction (dedication) is too limiting, for it can be exercised only where the particular parcel is being developed, and this contribution may not do the most good at that particular location. Local units of government should consider asking the Legislature to return to the more flexible provisions previously available until the passage of Laws 1980, Ch. 566. This permitted local governments to ask for cash payment in lieu of land dedication. The payments then were to be placed in a special fund for surface water management facilities wherever the governmental unit determined that it would be in conformance with a management plan.

USER CHARGES

User charges to finance sewer and water supply programs have long been adopted by local units of government. A few places in the United States have adopted user charges as a mechanism to finance their surface water management program. Areas where such financing mechanism has been implemented with success include: City of Bellevue, City of Tacoma and Kings County, Washington; City of Corvallis in Oregon and Ft. Collins, Denver and Boulder in Colorado. The financing principle involved here is: contributors pay. In most cases, all properties pay, but the user charge is commensurate with the runoff or pollution load contributed. Single-family residential lots are minimally charged.

Until 1983, it was not possible for any local unit of government in Minnesota to adopt a user charge scheme to finance surface water management, for the statutes did not provide the authority. During the 1983 legislative session,

the legislature amended M.S. 444.075 subd. 1 & 3 (1983 Laws Ch. 183) permitting all the Metropolitan Area cities, other than Minneapolis, and St. Paul, to charge for the use, the availablity and connection to the surface water system. These charges are to be used for the financing of storm water systems including the conveyance system, holding areas, ponds and related facilities. This includes the cost of construction, reconstruction, repair, enlargement, improvement or other obtainment and the maintenance, operation and use of such facilities. The charges made for service rendered shall be, as nearly as possible, proportionate to the cost of providing the service.

An important issue to decide when a city is considering user charges is the notion of service and to whom the service is rendered. In M.S. 444.075, subd. 1 and 3, as amended by Minnesota 1983 Laws, Ch. 183, the concept of a charge for service rendered is unclear with reference to storm sewer service. Of particular interest is 1) what is the service; and, 2) to whom is the service rendered?

To answer these two questions one should look at the purpose of proper surface water management and look at the legislative intent. Proper surface water management is undertaken for two reasons:

1. To provide a conveyance system for the increased volume and rate of surface runoff, resulting from activities on the land, whether they be urban or intensive agricultural uses.

2. To insure that the surface runoff does not damage riverine or lakeshore properties, or the ecology of a lake, thereby lowering riverine and lakeshore property values.

Thus storm water management provides two services; that is, the provision of a physical conveyance system and the protection of riverine and lakeshore properties against increases in flood level, erosion damages or degradation of water quality, all resulting in lower property values.

The definition of service rendered helps in delineating who will receive a surface water sewer service. First, a service is generally provided to the properties generating runoff, as ultimately they will rely on a surface water conveyance system. The degree to which they rely or use the system is dependent on how much is generated beyond the natural runoff level. A user charge rate structure then should differentiate between types of land uses, density of use and parcel size, all significant in determining runoff. The rate structure should also consider instances where no runoff is generated because of land characteristics, or management practices.

Secondly, a service is provided to properties in areas susceptible to increases in runoff, especially low lying areas, riverine and lakeshore properties. The degree of protection against the effects of flooding, erosion and water quality degradation is commensurate with the proximity to the creek or its floodplain, or to the lake. Some modifying factors would include topography, views and access to the lake.

However, from just reading the law it is difficult to determine what was the legislative intent in passing Minnesota 1983 Laws, Ch. 183, amending M.S. 444.075. Prior to the amendment, cities were authorized to assess properties for storm sewer service. The legal requirements for assessments, though, imposed conditions that limit the ability of the cities to pass on the entire

cost of the improvement and the service to the benefitted properties, if the cost exceeds the total increase in market value of the properties. In addition, the properties not directly benefitted, i.e., where a market value increase is not realized, cannot be assessed even though the drainage system may convey water from these properties. From this prior authority and the 1983 amendment to M.S. 444.075 it can be hypothesized that the Legislature's intent in passing Ch. 183 was to more liberally define the service provided by a surface water system to include both the service to properties generating runoff, as well as the service to properties being protected from the effects of increases in the runoff. Additionally, it would seem that the Legislature intended to move away from the limitations imposed by the concept of assessment levy not exceeding the increase in market value of a property.

The lack of clear definition in Ch. 183 of the term "service rendered" should be sufficient reason for cities intending to develop a "stormwater utility program" to seek the advice of their legal counsel, to insure that the user charge program is developed on a sound legal basis and to avoid unnecessary legal challenges.

Unfortunately, the authority to charge for service rendered is not available to Metropolitan Area counties. It is unfortunate as they are likely to be involved in surface water management in the unincorporated areas of the Region. The counties should study this piece of legislation and weigh the advantages and drawbacks of such authority and, if appropriate, ask the Legislature to include them in this legislation for the express purpose of surface water management.

M.S. 444.075 gives the cities a means of providing a self-financing surface water management service to its residents, independent of local property taxes and with user charges commensurate with the level of service required for the management of surface water runoff released from each individual parcel. In other words, the less runoff from a parcel of land, the less the need for surface water management facilities and the less the financial charge to the property owner.

The advantages of a user charge financing mechanism include:

1. The properties that contribute runoff and therefore cause the need for runoff management and runoff pollution abatement pay for the program.

2. The charge can be directly proportional to the runoff or pollution load released to the system, based on some unit of measurement. So the less the discharge, the less the financial burden for the individual. There is therefore a direct incentive to curb runoff and pollution, but the individual can decide which is the most efficient for the property in question: uncontrolled discharge with the proportional payment or a lesser discharge with the individual bearing the cost of privately providing for the management of the runoff on the individual property.

3. The surface water management service can be self-financing and therefore does not have to compete with other governmental services for general revenues. This makes it possible to implement a plan in a coherent way, at least theoretically, free of the problems associated with competition for funding.

4. This mechanism may be more politically acceptable for two reasons:

   a. The residents understand that, like with water supply or sewer systems, the more they use the system the more they have to pay; they control to some extent the level of service and therefore the charge that they will have to bear.

   b. The system will not require an increase in the property tax levy because it can be designed and operated as a self-financed service.

5. Both existing development and new development can be made to bear the burden of providing and maintaining the surface water management facilities when they contribute to the need for them.

6. The statutes do not impose rigid procedures or a cumbersome definition of benefits as the statutes on assessment and common law dictate. The charge must be simply commensurate with the level of service provided or volume of runoff or quantity of pollution discharged or the difficulty of disposing of the storm water or any combination of these criteria.

7. The revenues are to be placed in a separate fund to be used for operating and managing the facilities, or establishment, replacement, improvement, enlargement of the facilities.

8. The statutes provide that the revenues can be pledged to pay principal and interest on general or special obligations issued for the establishment of the surface water management system.

There are, however, several disadvantages to this financing mechanism that cities should be aware of:

1. The user charge system with respect to surface water management is new to this Region and may be sold to local officials and property owners with some difficulty, requiring a great deal of effort in educating the local officials and the public.

2. As with any new system, there will be some initial costs associated with the development of a user charge philosophy and formula, the collection of data necessary to determine the required user charge. Administrative cost also will be incurred from the necessity of preparing ordinances, answering inquiries from the public which will want to know how this will affect individual properties, and generally staff coordination.

3. An appeal process should be developed to provide an opportunity to review challenges to individual charges. This should be kept in mind when developing the charge formula and criteria. The simpler the formula, the more easily understood, the lesser the number of challenges due to misunderstandings. Also the less quantity specific the formula (that is, the more it treats land uses by general class and minimizes dealing with very unimportant differences in volume and quantity generation) the less the incentive to appeal the charges.

4. Possible reluctance on the part of the financial community to put faith in pledges of revenues from user charges for bond obligations in the absence of a "track record" for this sort of financing mechanism for surface water management, locally. However, this can be remedied by pledging property tax revenues should the user charges not generate sufficient funds.

The overall advantage of a user charge financing mechanism is that it provides a reasonably dependable source of revenues with which to finance not only the capital improvement program but also the administrative, regulatory and operation and maintenance aspects of the surface water management program. The time has come for officials and the public to recognize that surface water management is an essential government service that requires a dependable source of funding to be carried out. Surface water management programs have been implemented with great difficulties whenever they had to be supported primarily by tax-based funding.

SETTING UP A USER CHARGE PROGRAM

In amending M.S. 444.075 during the 1983 legislative session, the state legislature has made it possible for cities of the Metropolitan Area, other than Minneapolis and St. Paul, to develop a "stormwater utility" program with user charge for surface water management. This has added to the array of revenue sources available to the cities a dependable source of funds, that can be used not only for capital improvements but also for administrative and operation and maintenance activities. The section on financing mechanisms identifies both the advantages and disadvantages of user charges as a source of funds. A city should not rush into adopting the user charge system without first evaluating the implications (administrative, legal and fiscal) for the city and implications for individual residents and businesses.

This section assumes that a city has determined that it would like to institute a user charge system to finance the surface water management program. Information is then presented on how to setup a user charge system and the things to watch out for when doing so. Much of the information has been obtained from written material received from or conversation with officials in cities such as Bellevue and Tacoma in Washington, Portland and Corvallis in Oregon and Boulder in Colorado, which have developed a "stormwater utility" with user charges to support financially in total or in part the surface water program. It should be noted that prior to the city deciding to rely on user charges to finance the surface water management program, the staff may have to spend a great deal of effort to educate local officials and the public about the need for a self-financed system for surface water management. A general problem is that surface water management is often seen as an unimportant municipal service that usually takes care of itself.

In forming a surface water utility or a self-financed storm water management program the steps below must be addressed. The local experts in administration, planning/engineering, finance and municipal laws should be brought together to formulate recommendations on the program structure.

1. Adoption of a philosophy with regard to who pays for the storm water program (benefitted properties, contributing properties, a combination of both in some mix). This will determine the ability to support financially the surface water management program, as well as determine the general structure of the user charge formula.

2. Development of a formula to apportion the costs of the program. Many bases can be used: runoff volume generated above the natural volume; pollution load generated above the natural background; a substitute measurement for either, such as: lot size and land use category or percentage of effective imperviousness; or increase in value of the property benefitted. This can be developed first in the abstract without looking at costs to be apportioned.

3. Development of a public education and involvement program. Surface water management is an activity that few residents of an area identify with unless they are directly confronted with a flooding problem or with a lake that stinks. Additionally, the perception is that runoff is the natural result of raining or snowing and nobody should have to pay for taking care of it. The utility concept for runoff management is also new and may be difficult to accept at first.

4. Design of the administrative machinery will be necessary for planning, designing the local surface water management system, operating and maintaining the system and financing it. Staffing decisions must be made. Should it be a separate department or should the responsibility be added to those of existing staff in the Public Works department or Engineering or Planning department? Operating rules must be developed, billing and collection systems established. Appeal procedures should be set up to provide for review of billing complaints or complaints about land classification, or runoff/pollution generation determination, or benefits determination.

5. Definition of the drainage system and plan preparation or updating of the plans and detailing of the "system" components. After a watershed plan has been approved, cities and towns will have the responsibility of developing plans for the geographic area over which they have jurisdiction. Also, updating of the watershed plans will become necessary over time. Detailing of the "system" components also will be necessary as the "system" is being built or developed.

6. Adoption of ordinances establishing the legal framework for the storm water management program, its administrative, regulatory and financial structure. Ordinarily it will be necessary to establish by ordinance who at the local level is responsible for what part of the program. Also the user charge formula and rates will have to be set by ordinance. Regulatory controls necessary to assure proper management of the runoff and including standards for runoff/pollution, management practices required, plan review requirement etc. must be adopted.

7. Adoption of a design criteria manual for runoff and pollution control requirements. This is necessary to insure that new land development meets the standards set by the watershed and local surface water management plan. The manual gives the public agencies, as well as land developers, advance notice of what will be expected of them in the area of runoff and pollution control during and after construction. The manual should contain minimum standards for the design of structural and nonstructural components of the system; maintenance standards; suggested and preferred management practices and the like.

8. Development of enforcement procedures and establishment of an enforcement mechanism. There will be a need to monitor land development for proper runoff and pollution abatement; to investigate drainage violations and generally enforce the plan and ordinance requirements. Decisions will have to be made regarding whether to place the responsiblity for enforcement with an existing monitoring unit such as building inspection and public works department or to create a special unit. At the very least, the inspectors should be trained so they are fully aware of concerns in surface water management and can recognize a problem or potential problem.

The experience of the various communities where a surface water user charge program has been established brings out a few things that a community should look out for when setting up such a program.

1. The need of an energetic education program to drum up grass roots support for the surface water management program. This should lead to making the user charge program politically acceptable. Local officials and the public both need to be sold on it.

2. The user charge rate structure and user charge formula should be very simple for the public to understand. A cumbersome and complicated rate structure and formula will confuse the public, raise misunderstandings, and may bring about the downfall of the surface water program.

3. The system of charges must be simple to administer and maintain. A complicated formula and a sophisticated rate structure may on one hand apportion better the cost of surface water management in proportion to runoff and pollution discharge. On the other hand, however, the extra cost of monitoring, maintaining the data bank, justifying the formula during appeals may be burdensome and make the whole scheme inefficient and costly. A balance must be struck between ease of administration and fairness of the system.

4. The rate structure and charge formula must be equitable (fair). If the public perceives that some land uses are not included in the formulation of the user charge scheme or public landowners are left out, the fairness of the system will be questioned. In many areas, agricultural lands and open space areas are not charged or are minimally charged. In light of the results from research on agricultural runoff, it is unreasonable to treat agricultural runoff as being of no concern. Substantial runoff volumes and pollution loads can be generated when no or inadequate conservation practices have been implemented.

5. Insure that the rate structure will bring enough revenues to operate and maintain the surface water management program. If the structure does not bring sufficient revenues and property taxes or special assessments must be levied, as well, the public perception will be that it is a costly and inefficient program. Sufficient negative momentum may cause the program to become a political problem and bring about the demise of the surface water management program.

DISCUSSION

Financial planning must be considered an integral part of surface water management. In fact, before starting, local units of government should consider how they will finance their planning activities because this may affect, to some extent, the legal document framing the operation of the watershed management organization. There are many financing mechanisms available to carry out the surface water management mandate, though, not all the techniques are available to all governmental units and special districts. The following is a listing by governmental units of the techniques available to each:

Counties	May use property taxes and special assessments to pay for the costs associated with plan preparation, plan implementation and capital improvement projects. Obviously, the counties may also issue general obligation bonds, for which tax revenues or assessment revenues will be pledged, to obtain necessary capital for improvement projects.
Cities	Have the broadest array of financing mechanisms. They may use property taxes, special assessments, fees for land development, land exaction and user charges or fees. This last tool (user charge) is not available to the cities of St. Paul and Minneapolis. As with the counties, all cities may issue bonds to raise capital for improvement projects.
Towns	May use property tax, special assessments and land exaction.
Watershed Districts	May use property taxes for planning and, to a limited extent, for minor improvements. The district can rely on special assessment, which for them has an extended meaning since M.S. 112 provides that they may assess not only benefitted properties, as measured by the traditional increase in the property market, but also the runoff contributors. The county also may issue general obligation bonds on behalf of the watershed districts to pay for capital improvement projects.
Watershed Management Organizatons	Watershed management organizations that are formed by joint-powers agreement also have numerous tools available to them. A property tax may be levied for planning and plan implementation. The organization, however, has to rely on its members and the county to collect the tax. Similarly the joint-power agreement could essentially authorize the organization to collect a user charge for surface water management activities or service rendered. The limitations in this case are that; a) the agreement would specifically have to authorize the organization to form a surface water utility in M.S. 444.075, subd. 1., as amended in

1983 by Ch. 183. The Surface Water Management Act also allows counties to issue general obligation bonds to raise capital for improvement projects by the Watershed Management Organization, when the projects have been properly approved.

As presented in the chapter on financing mechanisms, the various techniques available to finance the surface water management efforts present advantages and drawbacks. Each individual unit of government should discuss the various tools available with its staff and technical advisors (engineer, fiscal officer and legal counsel) to determine what is best for the local situation from the point of view of legal authority, political acceptability, equity, expertise available and administrative requirements.

The Legislature, which mandated the surface water management activities, did not provide any funding to help carrying out the mandate. However, it made it easier to finance the activities through exempting property tax levies necessary for these activities from falling under the tax levy limitations. But, perhaps, more importantly for the cities, especially those that are caught by the need to provide increasing storm sewer service, the Legislature authorized the formation of surface water utilities and the charging of a "fee for service."

Cities should seriously consider the use of this new tool, as far as storm water service is concerned, for it provides an opportunity to raise revenues in a manner that is equitable (charge proportional to the service rendered). It also permits planning and implementing surface water management in a logical way with a dependable and continuous source of funding, free of competition from other governmental services.

However, cities should ascertain that planning and other ancillary costs for surface water management (such as those associated with the formation of a utility) are authorized as part of the user charge. Minn. 1983, Ch. 183, does not specifically prohibit including planning and ancillary costs in the user charge, but neither does it specifically authorize them. The second issue, which the cities must deal with, is the definition of "service rendered and to whom this service is rendered." As discussed under "User Charge" in the chapter on financing mechanisms, the intent of the legislation authorizing the creation of storm water utilities appears to provide the cities the authority to move away from the limitations of the definition of benefits under the special assessment laws and to expand the definition of service to include both the use of the conveyance system and the protection afforded by proper water management. Again, this is a legal issue that should be dealt with by the city's legal counsel.

User charge has been used by many storm water utilities across the United States with great success. A storm water utility presents many advantages that a city should seriously consider while deciding on what tools in its "arsenal" it should utilize to finance surface water management.

APPENDIX A

SYNOPSIS OF THE BELLEVUE, TACOMA AND VANCOUVER/CLARK COUNTY STORMWATER UTILITIES

CITY OF BELLEVUE STORMWATER UTILITY

The city of Bellevue, Washington, formed the storm water utility in 1974 to maintain the quality of its natural streams and protect the drainage system from the effects of, then, booming land development. The goal of the utility was to unify management and regulation of land use and development into a single agency. Objectives of the utility are to reduce or control erosion, protect against water pollution by sedimentation and siltation and protect against development without adequate provisions for the drainage system. The utility determined the average runoff for the entire city and new development is not allowed to exceed this runoff. Any runoff volume excess must be stored.

The utility is an independent agency with city-wide authority for surface water planning and management, including construction and maintenance/use of the system. It has its own staff and an advisory committee. The advisory committee which reports to the city council rather than the city manager, reviews, advises and recommends on surface water planning, storm water regulations, financing of projects and the annual budget and effects of major land development projects on storm water.

The utility's funding is derived from a user charge or fee assessed against all properties (including public properties) in relation to runoff contributions to the drainage system. The fee is set on the basis of the parcel size and runoff generated (see Table A1).

Much of the success of the Bellevue storm water utility has been the result of good public participation and grass root support for the maintenance of streams in their natural system.

Contact person: Pam Bissonnette, Director, Storm water Utility, Bellevue Washington. Tel. (206) 455-6923

Table A1
BELLEVUE
LAND CLASSIFICATION AND RATE STRUCTURE
FOR SURFACE WATER MANAGEMENT*

LAND CLASSIFICATION

- Undeveloped real property (no change from natural state)
- Light development, up to 20 percent of area is impervious
- Moderate development, 20 to 40 percent impervious area
- Heavy development, 40 to 70 percent impervious area
- Very heavy development, more than 70 percent impervious area

RATE STRUCTURE

- Each property is measured in increments of 2,000 square feet.
- The charge per increment of area is dependent on the intensity of development (based on runoff coefficient).
  Light development = 1.5 times undeveloped area.
  Moderate development = 2 times undeveloped area.
  Heavy development = 3 times undeveloped area.
  Very heavy development = 4 times undeveloped area.
- The charge can be reduced when conditions existing on the property warrant it.
- A property over 44,000 square feet can be classified in two intensity of development classes to account for different uses with different rates of runoff.

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* City of Bellevue, Washington, Ordinances No. 2429 and No. 2577 (establishing rate classifications and service charges).

CITY OF TACOMA STORMWATER UTILITY

The city of Tacoma, Washington, established a storm water utility in 1977 as a means of financing the maintenance of and improving its drainage system. The utility resulted from local voters rejecting a general obligation bond issue to fund capital expenditures for the drainage system. The city was under court order to produce a plan for improving drainage facilities. The focus of the utility is exclusively drainage, and no thoughts have been given to managing runoff for water quality.

The stormwater utility is part of the sanitary sewage utility with the staff serving a dual role. Its function is to implement the city's drainage master plan and operate and maintain the drainage system.

The storm water utility funding is derived from a user charge against all properties, including recreational open space, for runoff contribution to the drainage system. The fee is set on the basis of parcel size and runoff coefficient for the land use (in accordance with the Rational Method for computing runoff) (see Table A.2).

Since the utility was born from a court ordering the city to improve its drainage system to prevent serious flooding, the city has been little concerned about public participation or public acceptance. Rather it has imposed it as the only possible way of meeting the court order after the voters' rejection of a bond issue.

Contact Person: Chandler Odell, Utility Services, Tacoma, Washington. Tel. (206) 699-2451.

Table A2
TACOMA
LAND CLASSIFICATION AND RATE STRUCTURE
FOR SURFACE WATER MANAGEMENT*

LAND CLASSIFICATION

- Undeveloped land
- Light development
- Moderate development
- Heavy development
- Very heavy development

RATE STRUCTURE

- Each property is measured into increments of 500 square feet.
- The rate is based on lot size and runoff coefficient for the land use according to the coefficients used in computing runoff with the Rational Method (undeveloped R factor = 0.1; light R = 0.3; Moderate R = 0.4; Heavy R = 0.6; Very Heavy R = 0.8)
- Down classifying is possible if conditions warrant it, or if effective storm water control measures are used.
- Public streets and parks are exempted from runoff charges.

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* City of Tacoma, Storm Drain Utility Formation and Rate Report, Feb. 1979, Department of Public Works.

CITY OF VANCOUVER/CLARK COUNTY STORMWATER UTILITY

The city of Vancouver and Clark County, Washington, established a storm water utility through a joint-powers agreement in June 1980. The primary purpose of the agreement is for the city and county to act jointly in the operation, management and financing of a storm water management system within the Bunt Bridge Creek watershed.

The city has delegated the county the authority to implement the jointly developed program and to assess on city properties a service charge for a surface water management. The primary focus of the utility is water quality maintenance. The utility is also mandating runoff quantity control for new land development to prevent flooding problems.

The storm water and surface water utility is part of the Clark County urban services utility. It has an advisory board advising the utility on user charge rates, the annual budget and priorities in the work program.

The utility's funding is derived from a user charge assessed against all properties except public streets, public schools, open space and agricultural land. The agricultural land exemption is the result of a conscious decision to maintain farming in the area. The runoff fee is based on runoff quantity which is determined by the number of equivalent runoff units in each land parcel. See Table A.3.

Much of the impetus for this joint agreement came from the 208 water quality planning effort in the area. Much effort was put into involving the public to get them to accept the idea, a lawsuit has been brought against the utility asserting that the utility was improperly formed. The utility formation has been upheld by the local court, but the decision has now been appealed.

Contact person: Glen Dorcy, Storm water Utility Manager, Clark County, Vancouver, Washington. Tel. (206) 699-2044.

Table A3
VANCOUVER/CLARK COUNTY, WASHINGTON
LAND CLASSIFICATION AND RATE STRUCTURE
FOR SURFACE WATER MANAGEMENT*

LAND CLASSIFICATION

- Single-family residential, detached.
- Other residential and private schools.
- Retail, commercial, offices and public services.
- Industrial, manufacturing, railroad right-of-way.

RATE STRUCTURE

- Parcels are divided into increments of 8,000 square feet and runoff rates are assumed on a basis of 3,000 square feet of impervious area for 8,000 square feet. This defines the equivalent runoff unit (ERU).
- Charges are assessed according to the number of ERUs for the parcel in question.
- Allows for exemption (agricultural land, open space and property owned by school district and federal government).
- Allows for land reclassification.
- Senior citizens, handicapped and other persons on fixed income benefit from a 50 percent charge reduction on the single-family residential lot charge.

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* Personal communication from Glen Darcy, Stormwater Utility Manager, Clark Co., Vancouver, Washington.

APPENDIX B

STORMWATER RATE STRUCTURE FOR CITY OF CORVALLIS, OREGON; KING COUNTY, WASHINGTON; AND CITY OF BOULDER, COLORADO

Table B1
CORVALLIS
LAND CLASSIFICATION AND RATE STRUCTURE FOR STORMWATER MANAGEMENT*

LAND CLASSIFICATION FOR RUNOFF COMPUTATION

- Single-family residential.
- Multiple family unit.
- Commercial/industrial.
- Improved premises or lot.

USER CHARGE RATE STRUCTURE

- The rate structure is based on the amount of impervious material for a single-family unit or 2,750 square feet, the equivalent service unit (ESU).
- All urban uses are translated into a number of ESUs by dividing the area of imperviousness by 2,750 square feet. For example, a commercial lot with 10,000 square feet of roof, parking space and driveway would be equal to 3.6 ESUs and so charged 3.6 times the amount for a single-family residential unit
- Open space and farmland are not charged.
- The charge can be reduced when approved runoff control measures have been implemented.

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* Corvallis Ordinances, 2-19.8 Ordinances No. 80-65, passed Aug. 4, 1980.

Contact person: Chip Ullsted, Engineering Dept., City of Corvallis, Oregon. Tel. (503) 757-6941.

Table B2
KING COUNTY, SEATTLE
LAND CLASSIFICATION AND RATE STRUCTURE FOR STORMWATER MANAGEMENT*

LAND CLASSIFICATION FOR RUNOFF COMPUTATION

- Open space.
- Undeveloped.
- Single-family.
- Multifamily.
- Commercial/industrial.
- Roads and sidewalks.

USER CHARGE RATE STRUCTURE

- The rate structure is based on acreage in a given use and accepted runoff coefficient (standard Rational Method coefficients). The aggregate figure is the number of equivalent runoff units (ERU) which is used in computing the cost of the program per ERU.
- A flat fee is used for single-family properties.
- Public and private properties alike are charged for their contribution to the runoff problem.

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* Financial element of Juanita Creek Surface Water Management Program, Aug. 7, 1979, King County Department of Budget and Program Development.

Contact person: Stormwater Management Division, King Co., Seattle, Washington. Tel. (206) 344-2585.

Table B3
CITY OF BOULDER, COLORADO
LAND CLASSIFICATION AND RATE STRUCTURE FOR STORMWATER MANAGEMENT*

LAND CLASSIFICATION FOR RUNOFF COMPUTATION

- Single family
- Multifamily.
- Commercial/industrial.
- Improved premises or lot.

USER CHARGE RATE STRUCTURE

- The rate structure is based on parcel size in increments of 7,000 square feet, (15,000 sq. ft. increment for single family) and accepted runoff coefficient for the land use and intensity of use.
- Properties in the 100 year floodplain are assessed an additional charge to compensate for the additional drainage facilities required.
- The User Charge is adjusted downward for on-site detection facilities or other means of reducing runoff.

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* City of Boulder, Ordinance No. 4749 - Title 11 Utilities and Airport, Ch. 5, Storm water and Flood Management Utility--May 3, 1983.

Contact person: Steve Miller, Utilities Division, City of Boulder, Colorado
Tel: 303-441-3240

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Table 1
ADVANTAGES AND DISADVANTAGES OF DIFFERENT RUNOFF MANAGEMENT FINANCING MECHANISMS

	Ad valorem Tax	Special Assessments	Permits/Land Development Fees and Land Exaction	User Changes
Advantages	- Administrative structure for collection in place. - Simple and accepted source of revenue. - Allows for a larger revenue base.	- Only benefitted pay. - Revenues from assessment only available for the project. - Benefits to directly related to cost. - Assessment can be deferred in hardship cases.	- New development generating runoff pays for for runoff management. - Administration structure for reviewing plans and collecting fees is in place. - System can be tailored to the specific needs in drainage basin. - Revenues can only be used for runoff management project.	- Properties causing the need for runoff management pay. - Charge directly proportional to runoff land contributions. - Can be self-financing system. - Existing and new development alike pay. - Flexibility in the system. - Can only be used for stormwater management.
Disadvantages	- No incentive to curb runoff on pollution. - No relationship to level of benefits received. - Discontinuous source of revenues.	- Rigid procedural requirements. - Runoff contributors cannot be assessed. - Determination of benefits difficult. - May place an unfair burden on some segments of the population.	- Does not address existing problems. - Only addresses prevention not correction of problems. - Limited usefulness as a financing mechanism.	- May be politically difficult to sell. - Will likely require an expanded administrative structure.

Table 2
FINANCING MECHANISMS EVALUATION

Funding Strategy Elements	Ease of Application Administrative Feasibility	Can Public Understand it	Reliability as a Revenue Source	Meets Principle That Polluter and Beneficiary Pay	Equitable Allocation of Cost/Existing Versus New Growth	Elastic with Respect to Inflation*	Control	Ability to Promote Preventive Measures
Ad valorem property tax								
Special assessments								
Land development fees/land exaction								
User charges								
Others								

* An "elastic" revenue source is one that provides increased revenues during periods of inflation.

Source: Planning for urban stormwater management: Financial Issues and Options, U.S. EPA, Financial Management Assistance Program, 1980.

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